

**Allotment Management Plan
7C Bar Allotment
December 2008**

1. Introduction

This Allotment Management Plan (AMP) was developed following a Decision Memo for the 7C Bar Allotment signed by Martie Schramm, Williams District Ranger, in September 2008.

The 7C Bar Allotment is located approximately four miles west of Williams, Arizona and three miles south of Interstate 40. It contains approximately 177 Forest Service acres; approximately 165 acres of grassland and 12 acres of ponderosa pine forest.

2. Desired Conditions (Goals and Objectives)

The overall desired condition is maintenance of sustainable ecosystems within and surrounding the 7C Bar Allotment, in which livestock grazing does not impair important ecosystem functions, such as maintaining soil stability and productivity, and maintaining vegetation diversity and productivity.

Specific desired conditions that apply to the allotment include the following:

Vegetation

- Total herbaceous plant cover trends mirrors or improves upon trends in livestock excluded areas.
- Provide for a diversity of cool and warm season plants. Cool season plants trends mirrors or improves upon trends in livestock excluded areas.
- Protect Threatened, Endangered, and Sensitive plant species from adverse effects caused by livestock grazing and grazing management activities.
- Eradicate or control as many existing populations of noxious weeds as possible and prevent new introductions of noxious weeds caused by livestock management activities.

Soils

- Minimize erosion caused by livestock grazing and grazing management activities by maintaining soil condition and bare ground that mirrors or improves upon trends in livestock excluded areas.
- Total litter cover trends mirrors or improves upon trends in livestock excluded areas.

3. Background

Livestock grazing has occurred within the area since the late 1880's. Permitting began around 1905 with the establishment of the National Forests. No specific documentation is available regarding the type and number of livestock grazed Forest-wide in the early years, but general historic observations indicate that livestock numbers were high. The allotment has had the same permitted number of livestock and season of use since the 1970's. The current grazing permittee has held the permit on this allotment since 1995.

Current permitted use for the 7C Bar allotment allows up to 20 head of yearling cattle from July 1-October 31 (123 days), to be grazed every other year (57 Animal Unit Months [AUM's] and 81 Head Months [HM's]). There are no interior pasture fences on this allotment; livestock have access to all 177 acres.

The grassland is dominated by blue grama, with western wheatgrass, bottlebrush squirreltail and deergrass present. The topography is flat to gently rolling and there are no major canyons or riparian areas exist.

Differences exist between the potential natural community and the existing vegetation as the result of tree encroachment, historic livestock grazing, drought, and climate change. Ponderosa pine, pinyon, and juniper trees have encroached into the grasslands, competing for available nutrients, moisture, and sunlight. This trend has been attributed to a combination of climatic shifts, control of fire, and grazing. Cool season grass species have been replaced with the warm season blue grama. This trend is seen throughout the Williams Ranger District, and is attributed to the shift in climate.

Actual use has varied primarily due to drought, adaptive management, or ranch objectives. For example, in the 20 year period from 1989 thru 2008, the allotment was grazed only six times, and full numbers were run three times (see Table 1). Permitted cattle numbers, under the current grazing management system, fall within the carrying capacity of the allotment (84% of current estimates). Carrying capacity for this analysis is based on: actual use data, condition and trend monitoring, livestock and wildlife use patterns, livestock health and condition, soil surveys (Terrestrial Ecosystem Survey), forage production estimates, and professional opinion.

The trend for 7C Bar Allotment is generally stable for range condition and upward for soil condition. A reduction in cool season grass species is following trend found throughout the Forest in grazed and ungrazed areas. The cool season grass reduction is most likely caused by a decrease in winter moisture and an increase in warm season grasses.

One monitoring transect was established on the 7C Bar Allotment in 1960. It along with two pace frequency transects were read in 2007. The results of this monitoring indicate either a static or upward trend.

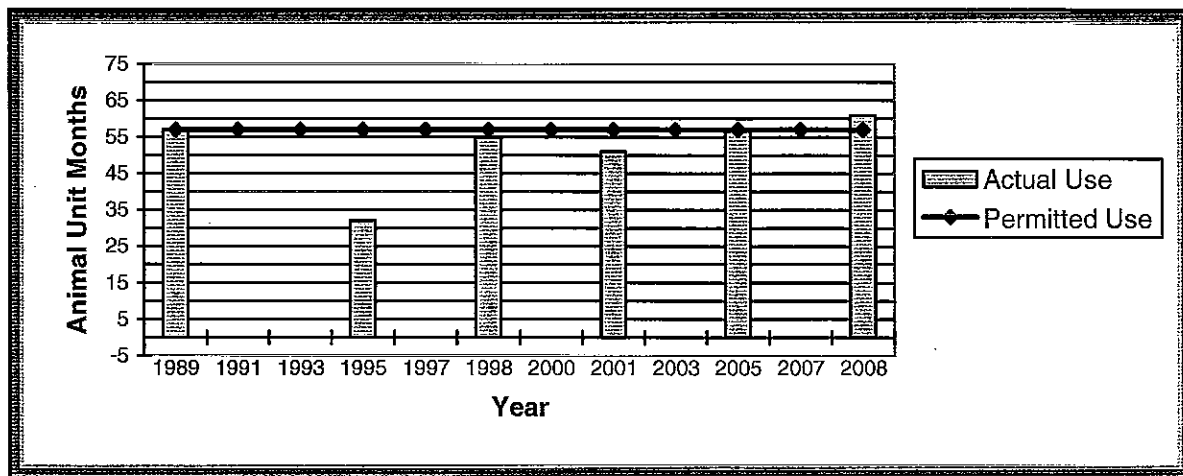
These range condition trends exist under the current livestock grazing system and within the current utilization guideline for livestock and wildlife. Grazing has remained within this utilization guideline and livestock have been able to use the area for the full length of the grazing season.

Table 1. 7C Bar Allotment Actual Use, 1989-2008

Year	Livestock Numbers	AUMs
2008	30	61
2005	20	57
2001	18	51
1998	15	55
1995	14	32
1989	20	57

Between 1989 and 2008, actual use ranged from zero to 30 cattle, with the allotment fully stocked (actual AUMs equal to permitted AUMs, 57) in 3 of those 12 grazing periods years (Figure 1). Reductions in stocking levels were primarily in response to drought conditions.

Figure 1: 7C Bar Allotment Actual; 1989 through 2008



4. Current Conditions

Monitoring data were evaluated by a Kaibab National Forest interdisciplinary team to assess changes in range conditions on the 7C Bar allotment. Data were available from one Parker Three Step transect (Parker transect), paced transects, and Terrestrial Ecosystem Survey (Forest Service 1991). Parker transect long-term monitoring data was collected in 1963, 1969, 1984, and 2007. Paced transect data were collected at two sites in 2007 to supplement the Parker transect data. Terrestrial Ecosystem Survey data were collected between 1979 and 1986.

Vegetation: 7C Bar Allotment is dominated by 165 acres of grassland and 12 acres of ponderosa pine forest. The vegetation condition score was 14 (Very Poor) in 1963, 27 (Poor) in 1969, 44 (Fair) in 1984, and averaged 23 (Poor) in 2007 (see Table 2). Monitoring data indicates that cool season grasses such as bottlebrush squirreltail declined since the 1960's, while blue grama, a warm season grass, has remained stable or increased slightly. There are no known populations of noxious weeds in the allotment.

Soils and Watershed: The allotment is dominated by grassland and savannah soil types (Mollisol soil order or mollic subgroups). Soil condition score increased from 34 (Poor) in 1963, 72 (Good) in 1968, 54 (Fair) in 1984, and 67 (Good) in 2007 (see Table 3). Bare soil declined (an improvement) from 27% in 1963 to 45% in 2007. There are no perennial streams.

Table 2. Vegetation condition scores determined on Parker transect and paced transects within the 7C Bar Allotment

Soil Map Unit	Transect Type	1963	1969	1984	2007
518	Parker	14	27	44	17
006	Paced				24
006	Paced				27

Condition scores correspond to the following ratings:

Very Poor = 0-20; Poor = 21-40; Fair = 41-60; Good = 61-80; Excellent = 81-100

Table 3. Soil condition scores determined on Parker transect and paced transects within the 7C Bar Allotment

Soil Map Unit	Transect Type	1963	1969	1984	2007
518	Parker	34	72	54	67
006	Paced				60
006	Paced				50

Condition scores correspond to the following ratings:

Very Poor = 0-20; Poor = 21-40; Fair = 41-60; Good = 61-80; Excellent = 81-100

Changes in the density and diversity of cool-season perennial grasses are important factors in evaluating range condition and trend. On the allotment, impacts from drought periods occurring after 1985 and changing precipitation patterns (drier winters and springs, late monsoons) are believed to be a significant factor in the loss of cool season grasses and, as a result, a decline in range condition scores. This is supported by Parker Three-Step Cluster data from an enclosure on the Pine Creek Allotment as well as a relic area on the Hat Allotment that has never been exposed to livestock grazing. Data collected from both sites shows similar declines in cool-season grasses and a decline in range condition and trend.

The results of the 2007 monitoring indicate an overall static trend in range condition and an upward trend in soil condition as supported by enclosure data. The enclosures mentioned above do not show a difference inside and outside the enclosures. From 1996 to 2007, during a drought period, cool season grasses have declined while warm season grasses and ground cover have increased.

These range condition trends exist under the current livestock grazing system and within the current utilization guideline for livestock and wildlife. Grazing has remained within this utilization guideline and livestock have been able to use the area for the full length of the grazing season. Livestock must be moved early if the grazing intensity level is reached prior to planned rotations, or may not enter an area if grazing intensity from wildlife already meets the grazing intensity guideline.

5. Management Strategy

Livestock grazing is authorized on the 7C Bar Allotment under the terms and management prescriptions described below.

Permitted livestock would remain at 20 yearling cattle from July 1 through October 31 every other year (81 HM's or 57 AUM's). Forage utilization standards will allow up to 30-40% use by cattle and/or wildlife during the grazing season. Cattle will move off of the allotment when grazing intensity approaches a conservative level (40%) anytime prior to August 30 to ensure adequate time for plant regrowth.

The current utilization¹ guideline would continue to allow up to 40 percent use by livestock and/or wildlife at the end of the grazing season. This includes "conservative" grazing intensity which is measured before the end of the growing season and is used in determining when livestock need to move off the allotment, in consideration of other factors such as weather patterns, likelihood of plant regrowth, and previous years' utilization levels. Livestock would move off the allotment when grazing intensity approaches a conservative level (40%) before August 30. This area would not be grazed again during the grazing season.

¹ Utilization is the proportion or degree of current year's forage production that is consumed or destroyed by animals (including insects). It is a comparison of the amount of herbage left compared with the amount of herbage produced during the year. Utilization is measured at the end of the growing season when the total annual production can be accounted for, and the effects of grazing in the whole management unit can be assessed. Utilization guidelines are intended to indicate a level of use or desired stocking rate to be achieved over a period of years.

Adaptive Management

This AMP includes the continued use of adaptive management, which provides more flexibility for managing livestock. Adaptive management allows the Forest Service to adjust the timing, period and occurrence of livestock grazing, movement of livestock within the allotment, and livestock numbers. If adjustments are needed, they are implemented through the Annual Operating Instructions, which would adjust numbers so use is consistent with current productivity. This allows plant, soil, and watershed conditions to be maintained or improved while range improvements are implemented over time. An example of a situation that could call for adaptive management adjustments is drought.

Adaptive management is designed to provide sufficient flexibility to adapt management to changing circumstances. If monitoring indicates that desired conditions are not being achieved, management will be modified in cooperation with the permittee. Changes may include administrative decisions such as the specific number of livestock authorized annually, specific dates of grazing, or modifications in grazing rotations, but such change will not exceed the limits for timing, intensity, period, number, occurrence and frequency of livestock grazing defined in this AMP.

6. Resource Protection Measures

- 1) Manage grazing intensity to not exceed Conservative Use category during the growing season, and to not exceed Conservative Use category at or near the end of the growing season when the potential for plant regrowth is limited. These grazing intensity categories can be exceeded in limited areas where livestock concentrate: a) within 1/4 mile of water developments (including temporary water hauls) and salt and supplement stations; and b) within 1/10 mile of pasture gates.
- 2) Consider a variety of factors related to drought when making decisions on annual authorization of livestock numbers and grazing period, including: a) amount and timing of current-year and previous-year precipitation received at weather stations nearest to each allotment, b) current-year and previous-year forage production as they contribute to current standing forage, c) estimates of current-year and previous-year grazing intensity, d) current and projected amount and distribution of water available to livestock (Howery 1999, Forest Service 2006).
- 3) Permittees must distribute livestock throughout the suitable grazing areas using appropriate methods, including placement of salt and supplements, water hauling, and herding.
- 4) Follow applicable Best Management Practices for range management from the *Soil and Water Conservation Practices Handbook* (Forest Service Handbook [FSH] 2509.22) to minimize soil and watershed impacts caused by livestock grazing and grazing management activities.
- 5) Follow applicable direction in the *Final Environmental Impact Statement for Integrated Treatment of Noxious or Invasive Weeds* (Forest Service 2005a: pages 281-282) to minimize the risk of new weed infestations caused by livestock grazing and grazing management activities.

Relevant direction includes: a) Consider weed prevention and control practices in the management of grazing allotments; b) Minimize transport of weed seed into and within allotments; c) Maintain healthy, desirable vegetation that is resistant to weed establishment; d) Minimize ground disturbance; e) Promote weed awareness and prevention efforts among range permittees.

7. Monitoring

Two general categories of monitoring would be conducted: implementation monitoring and effectiveness monitoring. Implementation monitoring determines whether resource protection measures and management practices detailed in the Forest Plan, allotment management plan, and annual operating instructions are implemented. Relevant components of the proposed action detailed in this NEPA document will be incorporated into the term grazing permit, allotment management plan, and annual operating instructions. Implementation monitoring includes determination of range readiness, evaluation of grazing intensity, estimation of forage production, evaluation of rangeland use, and grazing capacity determination (Forest Service 1997: pages 4-3 to 4-8).

The Forest Service and/or the Permittee will monitor grazing intensity in each year grazed at least once a year. Various methods will be used to evaluate grazing intensity, including one or more of the following: determination of forage utilization, amount of forage standing crop remaining at the end of the grazing cycle, percentages of grazed and ungrazed plants, plant stubble heights, litter or carryover vegetation from previous years, and visual appearance (Holechek and Galt 2000, Holechek and Galt 2004, Holechek et al. 2004: pages 195-196 and 248-251).

In addition to implementation monitoring conducted by the Forest Service, the permittee will be encouraged to help monitor grazing intensity and avoid exceeding grazing intensity levels specified above in Resource Protection Measures #1. Coordination between the permittee and the Forest Service will be encouraged to help the permittee accurately determine grazing intensity. In addition, the permittee will be encouraged to provide the Forest Service with actual use records at the end of each grazing season, including 1) livestock number; 2) grazing period; and 3) estimate of average grazing intensity at key areas on departure from grazing areas.

Effectiveness monitoring determines whether management practices are effective in moving the allotment toward desired conditions. Effectiveness monitoring is designed to determine the trend toward or away from desired conditions for vegetation resources, soil and watershed resources, and wildlife resources.

Long-term trend monitoring will be conducted at the historic Parker transect on the allotment every 5 to 10 years or as funding is available. Paced transects sites will also be read to delineate vegetation condition classes and provide additional data on composition, vigor, cover, and soil conditions over the larger area. During the next reading of these monitoring sites plant frequency and ground cover plots may be used to estimate trend, dry weight rank method will estimate relative species composition by weight, and species composition will be estimated by 1/10 acre canopy cover plots.

Data collected from both implementation monitoring and effectiveness monitoring will be continually evaluated by rangeland range staff and other Forest Service resource managers (e.g., wildlife biologist) to assess whether changes in allotment management are needed to achieve desired conditions and objectives.

Monitoring is adaptive, and as improved methods are developed these new methods will be considered. Historic monitoring could be adapted to include these improved methods. Depending on the availability of funding, the type of monitoring and frequency for the monitoring would include: visual observations to be conducted during a grazing period to include permittee compliance, allotment inspections, range readiness, forage production, and rangeland utilization.

8. Grazing Capability and Grazing Capacity

An analysis of grazing capability and grazing capacity was conducted on the 7C Bar Allotment in 2008. See Tables 4 and 5 for Capacity Classification by TES Map Units and Acres, respectively, on this allotment. Grazing capability of a land area is dependent upon the interrelationship of the soils, topography, plants and animals. Grazing capability is expressed as one of three capacity classes:

Full Capacity (FC) – areas that can be used by grazing animals under proper management without long-term damage to the soil or vegetative resource. They must also produce a minimum of 100 pounds per acre of forage and are on slopes less than 40 percent.

Potential Capacity (PC) – areas that could be used by grazing animals under proper management but where soil stability is impaired, or range improvements are not adequate under existing conditions to obtain necessary grazing animal distribution. Grazing capacity may be assigned to these areas, but conservative allowable use assignments must be made.

No Capacity (NC) – areas that cannot be used by animals without long-term damage to the soil resource or plant community, or are barren or unproductive naturally. In addition, it includes areas that produce less than 100 pounds per acre of forage and/or are on slopes greater than 40 percent. Grazing capacity is not assigned to sites with a “no capacity” classification.

Table 4. Grazing Capacity Classification by TES Map Unit

TES Map Unit	Capacity	Acres
006	Full	30
518	Full	135
537	Full	12

Grazing capacity is a function of grazing capability, forage production, proper use by livestock, and the level of management that may be applied. This analysis used forage production and grazing capability to determine the estimated grazing capacity of the allotment. Forage production estimates were taken on the allotment. Production data from the Terrestrial Ecosystem Survey (TES) was used for any data gaps. An allowable use standard of 40 percent was used on the Full Capacity acres within the allotment.

This analysis revealed that under current management, permitted livestock are utilizing:

- 84% of the estimated grazing capacity on the 7C Bar Allotment,

In terms of total estimated forage production, permitted livestock are utilizing:

- 34% of the estimated forage produced on the 7C Bar Allotment,

This analysis indicates that the current permitted livestock numbers are within the estimated grazing capacity of these allotments (see Table 5).

Table 5. Grazing Capacity for the 7C Bar Allotment.

Grazing Capacity Estimates By Allotment	7C Bar
A) Forage Required by Permitted Livestock	45,600 pounds (57 AUM's)
B) Grazing Capacity (FC acres only with established utilization standards)	54,000 pounds (68 AUM's)
C) Total Estimated Allotment Forage Production (FC acres)	135,000 pounds (169 AUM's)
D) Forage required by permitted livestock as a percentage of the Grazing Capacity (A÷B)	84%
E) Forage required by permitted livestock as a percentage of the Total Allotment Forage Production (A÷C)	34%

An AUM (Animal Unit Month) is amount of forage required by an animal unit for one month; approximately 800 pounds/AUM.

9. Range Improvements

1) Existing Structures

Range improvements (fencing, waters, handling facilities, etc.) are critical components of any grazing management plan. All range improvements assigned to the permittee (Table 6) need to be maintained in order to facilitate proper management of the allotment.

Permittees are required to follow the District's Heavy Equipment Policy prior to beginning any ground disturbing activities which may require an archaeological survey and/or wildlife clearances.

2) New Construction

No new range improvements have been identified in the NEPA process for the 7C Bar Allotment.

Table 6. Improvement Maintenance Responsibility for the 7C Bar Allotment

Improvement Name	Improvement Number	Improvement Type	Units in Place
7C Bar Fence	7619	Fence, Allotment Boundary	2.7 miles

10. Flexibility/Adaptive Management

It is imperative that flexibility and adaptive management be considered when following this allotment management plan. Adjustments to the grazing period may be necessary due to weather constraints (i.e. precipitation patterns favor or do not favor certain portions of the allotment), or management activities in an allotment (P/J treatment or prescribed burning).

There may also be a need to vary livestock numbers to meet objectives. Drought may force the reduction of livestock numbers while on the other hand additional numbers above term permit may be appropriate in certain situations.

11. Travel Management

The Kaibab National Forest has actively pursued a road closure program for the last several years. This program is aimed at reducing non-essential roads for watershed protection and to decrease disturbance to wildlife. These closures must also be honored by the Permittees.

If you need to enter a motor vehicle restricted area, you must have special authorization in the form of an Off-Road Vehicle Permit or specific authorization through your Annual Operating Instructions. Entering a restricted area without authorization is a violation of 36 CFR 261.

Additionally, the Williams Ranger District is currently planning the implementation of the Travel Management Rule, as directed by the Washington and Regional Offices of the Forest Service. The end product of the Travel Management Process will be a map of roads open to public travel. All other roads will be closed to the public and cross country vehicle travel will be prohibited across both districts. Many roads that will not be open to the public may remain open to Forest Service employees and grazing Permittees for administrative purposes. Access for Permittees will be refined during the Travel Management Process and in Annual Operating Instructions. The Travel Management Process is still open for public comment. For more information or to comment, call your district grazing permit administrator or check the Kaibab National Forest website at <http://www.fs.fed.us/r3/kai/travelmanagement/index.shtml>.

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